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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,407

04/14/2005

Manfred Roessler

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8244

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EXAMINER

MCGRAW, TREVOR EDWIN

ART UNIT

PAPER NUMBER

3752

MAIL DATE

DELIVERY MODE

02/10/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,407	<b>Applicant(s)</b> ROESSLER ET AL.	
	<b>Examiner</b> Trevor E. McGraw	<b>Art Unit</b> 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/23/2008</u>  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Appeal Brief***

In view of the Appeal Brief filed on 11/25/2008, PROSECUTION IS HEREBY REOPENED. The new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Len Tran/

Supervisory Patent Examiner, Art Unit 3752.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3752

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gray (US 4,245,789) in view of Maier et al. (US 5,732,888) and Furusawa et al (US 20040000429).

In regard to Claim 7, Gray teaches a fuel injector with a solenoid assembly (14), an armature (73) acted upon by a spring (77) in the closing direction, a valve needle (72) that is connected to the armature (73) by force locking where a valve closure member (Figure 1) is formed which forms a sealing seat with a valve needle surface (Figure 1) where the armature stop face (73s) strikes against a stop face (63s) of an inner pole (63) where the surface structure of the armature stop face (73s) and the stop face of the inner pole (63s) have raised and recessed dome shaped areas (Figure 2) at a height difference of 0.4  $\mu\text{m}$  to 0.8  $\mu\text{m}$  for the inner pole stop face (63s) and 0.2  $\mu\text{m}$  to 0.3  $\mu\text{m}$  for the armature stop face (73s).

However, Gray fails to teach an armature stop face (73s) and inner pole piece being coated with a plurality of chromium layers where the height difference between the raised and recessed dome shaped areas are in a height difference between 5  $\mu\text{m}$  to 10  $\mu\text{m}$ .

On the other hand, Maier et al. teaches that it is old and well known in the art to have a coating used with an armature to provide a wear resistance medium for the armature but fails to teach where the surface structure of the coating has raised areas and recessed areas, wherein the raised areas have a dome-shaped design and the

Art Unit: 3752

height difference between the raised areas and recessed areas is initially between 5  $\mu\text{m}$  and 10  $\mu\text{m}$  and is reduced to between 4  $\mu\text{m}$  and 5  $\mu\text{m}$  during use of the fuel injector.

It is noted to Applicant that the patentability of a product does not depend on its method of production (e.g. the raised and recessed areas...). If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process (See MPEP 2113).

It would have been obvious to one with ordinary skill in the art at the time of the present invention to modify the armature stop face and inner pole piece of Gray to be made with a chromium coating as taught by Maier et al. (US 5,732,888) to provide for a high resistant coating to preclude or reduce operational wear per cycle of the fuel injector and to provide the chromium coating in a plurality of layers where the surface structure of the coating has raised and recessed dome shaped areas where the raised areas have a dome-shaped design and the height difference between the raised areas and recessed areas is initially between 5  $\mu\text{m}$  and 10  $\mu\text{m}$  and is reduced to between 4  $\mu\text{m}$  and 5  $\mu\text{m}$  during use as taught by Furusawa et al (fuel injector of Gray in view of Maier et al and Furusawa et al would inherently reduce the levels of the chromium layers due to frictional operation of the armature and armature stop face) to permit thicker layers of a coating to further reduce wear on a surface.

### ***Response to Arguments***

#### **Rejection under 35 USC § 103**

Art Unit: 3752

Applicant's arguments with respect to claim 7 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yoshitake et al (US 6,964,815), Haskal et al (US 20050175777).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trevor McGraw whose telephone number is (571) 272-7375. The examiner can normally be reached on Monday-Friday (2nd & 4th Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571) 272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/T. E. M./  
Examiner, Art Unit 3752

/Len Tran/

Application/Control Number: 10/531,407

Page 6

Art Unit: 3752

Supervisory Patent Examiner, Art Unit 3752